

## Long-period teleseismic detectability and its response to cryosphere variation around Syowa Station, Antarctica since 1967

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Phase identifying procedure for teleseismic events at Syowa Station (69.0S, 39.6E; SYO), East Antarctica have been carried out since 1967 after the International Geophysical Year (IGY; 1957-1958). From the development of INTELSAT telecommunication link, digital waveform data have been transmitted to the National Institute of Polar Research (NIPR) for utilization of phase identification. Arrival times of teleseismic phases, P, PKP, PP, S, SKS have been reported to the International Seismological Centre (ISC), and published by "JARE Data Reports" from NIPR. In this paper, hypocentral distribution and time variations for detected earthquakes are demonstrated over the last four decades in 1967-2010. Characteristics of detected events, magnitude dependency, spatial distributions, seasonal variations, together with classification by focal depth are demonstrated. Besides the natural increase in number for occurrence of teleseismic events on the globe, a technical advance in observing system and station infrastructure, as well as the improvement of procedure for reading seismic phases, could be efficiently combined to produce the increase in detection number in last few decades. Variations in teleseismic detectability for longer terms may possibly be associated with cryosphere dynamics and evolution, meteorological environment, as well as the sea-ice spreading area around the Antarctic continent. Recorded teleseismic and local seismic signals have sufficient quality for many analyses on dynamics and structure of the Earth's as viewed from Antarctica. The continuously recorded data are applied not only to lithospheric studies but also to Earth's deep interiors, as the significant contribution to the Federation of Digital Seismological Network (FDSN) from high southern latitude.

Keywords: teleseismic event, ISC, sea-ice variation, Antarctica, phase detection